2/21

2304E344

Candidate's Seat No :_____

B.Sc. (NEP) Sem.-4 Examination

DSC-C-241

Statistics

April-2025

Time : 2-00 Hours] **[Max. Marks : 50**

Q-1	(A)	Obtain mean and variance of negative binomial distribution.	(7)
	(B)	Obtain mean and variance of geometric distribution.	(7)
		OR	
Q-1	(A)	Derive mean and variance of Hyper geometric distribution.	(7)
	(B)	Derive moment generating function and cumulant generating function of Negative Binomial Distribution.	(7)
Q-2	(A)	Define Weibull distribution and derive its moment generating function.	(7)
	(B)	Derive mean and variance of Gamma distribution.	(7)
		OR	
Q-2	(A)	Derive mean, variance and median of Cauchy distribution.	(7)
	(B)	State and prove additive property of Gamma distribution.	(7)
Q-3	(A)	Define non-random sampling and explain types of it.	(7)
	(B)	Explain sampling distribution of the difference between two means.	(7)
		OR	
Q-3	(A)	Explain sampling distribution of the difference between two population proportions.	(7)
	(B)	Give difference between sampling and non-sampling errors.	(7)
Q-4	(A)	Write a note on types of errors.	(7)
	(B)	Explain (1) level of significance (2) critical region (3) power of the test	(7)

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OR

Q-4 (A) Explain how to test significance of difference of two means for large sample test. (7)

(B) Explain how to test significance of difference of two population proportions for large sample test. (7)

Q-5 Attempt any seven out of twelve. (14)

(1)_The mean of geometric distribution is given by

(a) $\frac{p}{q}$ (b) pq

(c) $\frac{q}{p}$ (d) $\frac{rp}{q}$

(2) In Weibull distribution, $\propto and\ \beta$ are _____ and ____ parameters respectively.

(a) scale, shape (b) shape, scale

(c) location, shape (d) location, scale

(3) The mean of Negative binomial distribution is given by

(a) $\frac{rp}{q}$ (b) $\frac{q}{p}$

(c) $\frac{p}{q}$ (d) $\frac{rq}{p}$

(4) Write any two uses of large sample test.

(5) State variance of Negative binomial distribution.

(6) State Cumulants of Hypergeometric distribution

(7) State mean and variance of Weibull distribution.

(8) State PDF of Cauchy distribution.

(9) Define sampling distribution.

(10) Define non - random sampling.

(11) Give any two names of random sample techniques.

(12) what is parameter and statistic?